

Amendments to Claims

1. (currently amended) A method of forming a droplet of weld metal on a welding wire electrode and separating the droplet from the electrode in a globular transfer mode in an arc welding process, said method comprising:

establishing a direct current flow in an arc between said electrode and a workpiece at a background current flow level over a welding cycle time period for forming a droplet on said electrode and transferring said droplet in said arc to said workpiece;

producing a first pulse in said current flow additive to the background current flow level, during said welding cycle time period, at a first pulsed current flow level greater than said background current flow level for forming said droplet on said electrode; and

producing a second pulse in said current flow additive to the first pulsed current flow level, during said welding cycle time period, at a second pulsed current flow level greater than said first pulsed current flow level for separating said droplet from said electrode and for transfer in said arc to said workpiece.

2. (original) A method as recited in claim 1 in which said current is continued at said background flow level and said first and second current flow pulses are repeated to form and transfer a corresponding plurality of droplets of weld material from said electrode to said workpiece to form a weld in said workpiece.

3. (original) A method as recited in claim 1 in which the duration of said first pulse in said current flow is a first pulse period that is less than half of said welding cycle time period.

4. (original) A method as recited in claim 3 in which the duration of said second pulse in said current flow is a second pulse period that is less than said first pulse period.

5. (cancelled)

6. (cancelled)

7. (cancelled)

8. (cancelled)

9. (currently amended) A method of forming a droplet of weld metal on a welding wire electrode and separating the droplet from the electrode in a globular transfer mode in a gas metal arc welding process, said method comprising:

establishing a direct current flow in an arc between said electrode and a workpiece at a background current flow level over a welding cycle time period for forming a droplet on said electrode and transferring said droplet in said arc to said workpiece;

producing a first pulse in said current flow additive to the background current, during said welding cycle time period, at a first pulsed current flow level greater than said background current flow level for forming said droplet on said electrode; and

producing a second pulse in said current flow additive to the first pulsed current, during said welding cycle time period, at a second pulsed current flow level greater than said first pulsed current flow level for separating said droplet from said electrode and for transfer in said arc in a globular mode to said workpiece.

10. (original) A method as recited in claim 9 in which said current is continued at said background flow level and said first and second current flow pulses are repeated to form and transfer a corresponding plurality of droplets of weld material from said electrode to said workpiece to form a weld in said workpiece.

11. (original) A method as recited in claim 9 in which the duration of said first pulse in said current flow is a first pulse period that is less than half of said welding cycle time period.

12. (currently amended) A method as recited in claim 11 in which the duration of said second pulse in said current flow is a second pulse period that is less than said first pulse period and the magnitude of the second current pulse is more than twice the magnitude of the first current pulse.